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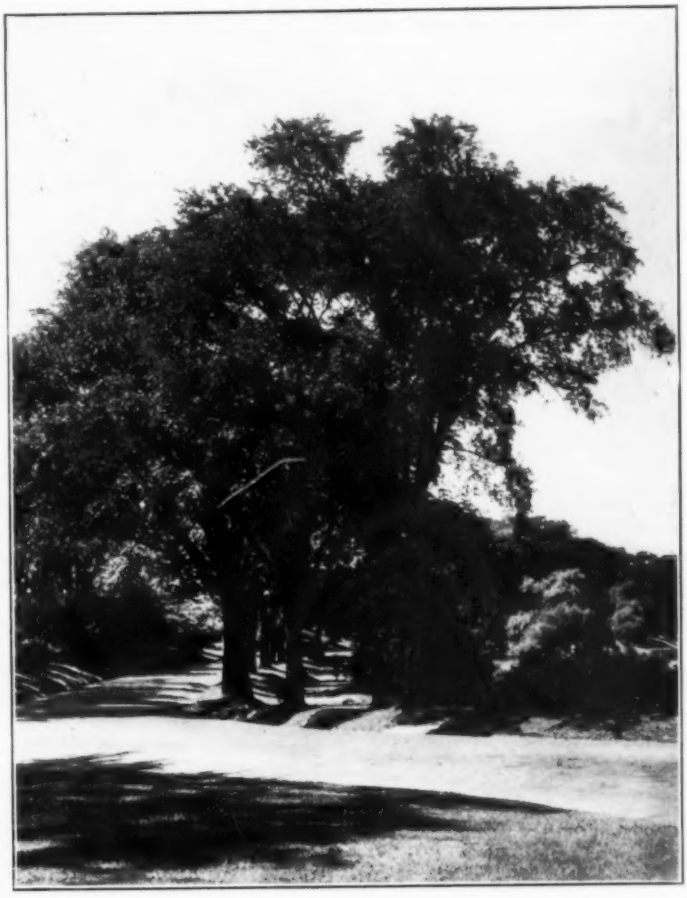
STATE EDUCATION DEPARTMENT

THE UNIVERSITY OF THE STATE OF NEW YORK

BULLETIN TO THE SCHOOLS

VOL. 15 APRIL 15, 1929 NO. 15

Arbor Day Number



From picture collection of Visual Instruction Division

No man hath ever known or said
How many there may be,
But each tree helpeth to make a shade;
Each leaf to make a tree.

Holmes

What Should Be Conserved in New York State?

BY RALPH C. BENEDICT, BROOKLYN BOTANIC GARDEN

In the conservatory of the Brooklyn Botanic Garden there stands a unique thatch palm, the only plant of its species known to be in existence. About 50 years ago, Charles Wright, collecting in Cuba, found the first example, and from herbarium material sent to England, the species was named and classified (*Coccothrinax crinita*). No later scientific collections have been made although botanists ever since have been on the lookout for it.

A Lone Survivor of Its Species; Thatch Palm (Coccothrinax crinita) in Brooklyn Botanic Garden

Strangely enough, however, a single live plant came into the possession of John Lewis Childs some years ago, and was presented by him to the Brooklyn Botanic Garden. There it remains today as the sole known survivor of its race, growing thriftily, but without progeny and without the expectation of any. It has not yet borne flowers, but if it does, they will presumably be single-sexed, as is common among palms, so that this species can persist only so long as its one sterile representative survives. In this respect it recalls the last survivor of the passenger pigeon for which a mate was assiduously but vainly sought until it died some twenty-five years ago. Whether the palm ever existed in any such abundance as the sky-darkening pigeon no one can say, but whatever the uncertainty regarding the origin of these two species, their termination is open for anyone to observe.

Conservation and Legislation

Conservation of natural resources for economic reasons is of first importance for the maintenance of the future welfare of the Nation, but even in this field the task of making this clear to the electorate and to their legislative representatives has been a long slow process, and is still far from completed. The conservation of beauty in nature must depend for leadership upon those few who have come to appreciate its importance; action at this time may count materially in the preservation of features whose value is not yet generally recognized.

It is for this reason that the Brooklyn Botanic Garden has for years given special support to the program for the preservation of threatened native plant species. It has suggested and supported the passage of laws by which wild plants might be accorded something of the recognition in the conservation law that animals long have had. It is not expected that the passage of a new law will in itself be adequate as a conservation measure, or a substitute for a widespread educational program, but in the discussion and publicity that attends the initiation of new legislation, there exists one of the most potent means of interesting both the legislators and the voting public.

The position of the conservation movement as it relates to plant protection seems now to be about where the movement for the protection of native song birds was 30 years ago. Before that time it had been the accepted thing for aspiring naturalists, if not for boys in general, to make collections of birds' nests and eggs, and even of birds' skins. Then under the leadership of a few farseeing naturalists, bird protection gained support until state authorities were persuaded of its importance, and bird con-

From picture collection of Visual Instruction Division

Spring Brings the Glory of Mountain Laurel to Hillsides
Inset shows laurel blossoms.

servation laws with their lists of protected species were passed. As a basis for educational measures in the schools and elsewhere, it was psychologically much more effective to say not "Why *ought* song birds to be protected?" but "Why *are* song birds protected by state law?"

New laws are "news," and the fact that a dozen states now have "game laws for ferns and wild flowers" has given this present phase of the general conservation movement an assured position which it would not have been accorded if it were still entirely in the propaganda stage. The farmer can be more easily interested in the protection of native wild plants when he understands that laws such as those passed in Connecticut and New Jersey have strengthened his primacy on his own property, and have given him more adequate protection against wanton trespassers and vandals.

In New York State during the past few years, through the interest of Assemblyman T. Channing Moore, there have been added to the statutes laws which establish the principle of protection for native plants. These, which specifically mention three flowering plants, the flowering dogwood, mountain laurel and the pink lady's-slipper, stand as an excellent beginning and the basis for more effective educational work throughout the State.

Artificial Propagation and Restocking

Another definitely constructive measure in this plant conservation program, also adapted from the procedure followed for animals, is that of artificial propagation of any species specially threatened through whatever cause. In Connecticut this has been applied to the state flower, mountain laurel, which besides being highly prized for its beautification of the roadside, has the added value of affording landowners a regular income if its evergreen leaves are periodically harvested. Methods of its repro-

duction have been studied and information has been disseminated relating to its proper treatment and culture.

In New York, a special experimental propagation and distribution of the rarest fern in the country, the hart's-tongue, has been carried out at the Brooklyn Botanic Garden. The chief threat to the existence of this fern was associated with the despoliation of the glacial waterfall east of Jamesville, the site of which used to be the best locale for this species in the country.

Hundreds of young plants have been grown and sent throughout the country to those who would endeavor to establish the sporelings in favorable conditions. It is too early to report as to the success or failure of this venture, but the experiment has at least served as a demonstration of one concrete method of saving a rare species from destruction.

Plant Sanctuaries

The program for plant protection has still further followed the path and leadership of the animal conservation movement in that the establishment of sanctuaries for native plants has been recommended along the lines of those sponsored by the New York State conservation law. So far this proposal has not received legislative support although it involves a very slight amendment to the section affected.

Plant sanctuaries may be established by private initiative, however, without waiting for special state sanction. The present trespass laws give a basis for protection, and it is important to begin this positive type of conservation before it is too late. Such a beginning has been made in Fairfield, Conn., in an endowed sanctuary, originally instituted chiefly for birds, but with wild plant protection as an important part of its aim. This little sanctuary also gives valuable aid in the nature study phases of the local educational work.

How far should we strive to protect and preserve natural scenic and scientific features from destruction? How far should we labor to save rare species of plants from extinction? Is not the march of evolutionary change bound always to be destructive, even as it is creative? Certainly we can not stop the self-destruction of Niagara Falls, and the disappearance of the thatch palm mentioned above has been brought about by the operation of natural factors. It would seem reasonable to conclude that conservation measures have pertinence chiefly when man has been responsible or is likely to be responsible for the destructive processes, and then only when it can be shown that the despoliation is avoidable, and that it would be the part of intelligent foresight to prevent it.

The School in the Park

FROM AN ARTICLE BY JENS JENSEN IN THE AMERICAN REVIEW

The school, in the bringing up of the young American, should be situated in the most beautiful environs possible and especially in our great cities where the influences of the country are more remote. Also the school's art expressions, whether concerned with the exterior or interior of the buildings, or the composition of the park or playground and the building, should be of the very best. The school is but secondary to the home in the building up of the race. We have been entirely too lax with funds for educational purposes and especially in providing a decent setting and decent surroundings for our public schools. No wonder pupils turn their backs to the school when through, often with a feeling of resentment. As a rule, cinders, gravel and sometimes brick, with barren walls are the typical settings for average city schools.

The school must become the center of our community life, and ought to be made a center for the cultural life of the neighborhood, where boys and girls together with their fathers and mothers can find the best in art and education the country has to give, and which should be given to them cheerfully and freely during their entire life.

In the movement for placing the school in a park, so to speak, there are two main objects to be considered, which I think, are of equal importance. The one is to provide a bit of

another world, as it were, within the school territory as an important part of the educational requirements of the city child. The other is to scatter throughout the city oases of living green.

Let us consider the first object; the plan of surrounding the school with something different from the street picture, not a layout of building material, but living growing things — a gateway, so to speak, quite different from what the average city boy or girl is accustomed to — a place to spend the time set aside for recreation, during and after school hours under the influence of beautiful environs. Consider the possibilities of such a park as a place for study, with classrooms out of doors, for appropriate outdoor subjects, the opportunities for physical development, play in the way of the drama, group playing and group dancing. In such surroundings the imagination is ripe to receive all there is given to it. Few realize how differently the latter appeal to the mind when enacted in the out of doors, and especially the effect upon the minds of those who live and move in an entirely different environment. A play or dance under the open sky or under leafy bowers, or moving groups seen in the poetic light of the moon or in the deep shadows of stately trees and leafy shrubs or in the reflection of a natural fire on the stage or in the play ring speak a different language, a more serious, a more beautiful, a more intimate language than on the indoor stage. There is also a feeling of freedom in one's movement, not the restraint of the building or city street. All these things lead to a greater development and a broadening out of the mind of the child.

But of far more importance, it seems to me, is the vegetation that makes up the school park and gives it its beauty and its poetry. Thousands of children in the city have no knowledge of this living green; it is strange to them; it is a thing of all things they need to know as a natural balance in the development of body and soul. Trees and flowers speak to them a different language; a strange language, but a language well to learn because there is in the soul of every human being a subconscious yearning for it. Each beautiful flower has a message to bring that the children soon understand, they speak words unlike those of the teacher but they speak them in terms unmistakable. Their beauty is needed in the barren soul of the average city child; their colors and sweet perfume give joy to those who understand their message. The freedom under which they grow, the expression and composition with one another are also valuable as the child forms a picture in its imaginative mind. Trees give a feeling of reverence and sublimity, their cool shade is welcome as is their protection during winter's blast. They seem to become friends and as the child grows up he never wants to be without them. Above in the trees are the birds nesting and rearing their young and from there they sing and warble their sweet and beautiful notes — another strange performance unheard of in the walled and barren city, and all for the natural, better and truer development of the city child. Squirrels become permanent residents in these environs, even rabbits jump across the path — each one for the joy and pleasure of the children. This is of untold educational value, taking hold as it does on the child's imaginative mind, and of greater importance than all the zoological gardens in the world.

Then take the composition of the whole, school and playground, all hedged in by masses of green practically closing out the city. Within this oasis smaller pictures are expressed by a bit of meadow, a pool, a shady path, a little clearing amongst the trees and shrubbery, a mysterious nook or corner; in the evening, the light of campfires and the curling smoke as it rises heavenward. Each picture in itself is worth more to the child than all the art galleries, because it is the real living thing and not a copy or reproduction of the same. The artificial life of the city demands for its wholesome expression these living pictures. As the city grows and as the city crowds and turns into living beehives, we must have more breath and more light at certain intervals in the city complex and it is my belief that this should be about the schools where the child is trained into his life's work. No sacrifice is too great in the development of the young American of tomorrow; it is in him our hope lies and we are duty bound to guide him along the right road to a proper life, physically and mentally.

—o—

I open the window and make salute:
"God bless thy branches and feed thy root!
Thou has lived before, live after me,
Thou ancient, friendly, faithful tree."

Henry Van Dyke

Growing Interest in School Forests

BY HERBERT F. PRESCOTT, SECRETARY, STATE CONSERVATION DEPARTMENT

In 1928 there was an increase of more than 50 per cent in the number of school and school district forests in the State, and in the past three years there has been an increase of more than 200 per cent. Up to the close of 1925 there had been started 13 such forests; by the end of 1927 there were 27 and at the beginning of 1929 there were 42 without counting a large number of school plantations in Broome county, made primarily for demonstration purposes to show how idle land may be put to profitable use by reforesting it.

These figures indicate a growing interest in the subject of school forests in the rural portions of the State, and that their possibilities as sources of revenue from which to pay school taxes are being studied carefully.

While there are very few instances in this country of planted forests old enough to furnish definite information as to just what return may be expected from them, the profits in municipal forests are well known in Europe where they have been operated for several centuries. The average annual net profit from town-owned forests in Europe is given by J. H. Foster, state forester of New Hampshire, as $5 an acre, and many community forests in Switzerland yield annually as high as $8 an acre. In Zurich, Switzerland, there is a city forest of 4200 acres that has been under forest management for more than 1000 years and yields a net annual revenue of from $20,000 to $30,000, which is at the rate of from $4.70 to $7 an acre.

Another illustration of the value of a municipal forest is furnished by the village of Orson, Sweden. The people of the village are tax free and have free street car service, telephone, library, schools etc. In Germany one town uses a portion of its forest to meet extraordinary expenses for public improvement. In place of issuing bonds for a new schoolhouse, a public building or other municipal improvements, the town cuts sufficient timber from the reserve section of its forest to meet the cost. In many cities and towns in Germany, Switzerland and

Courtesy of State Conservation Department

The Clara Barton Memorial Forest, Three Years after Planting

other European countries, the revenues from the municipal forests pay all the local taxes.

In this country there is the case of the Latham plantation at East Bridgewater, Mass., which shows a return of better than $10 an acre. This plantation was made in 1873 with small trees dug from neighboring pastures. The area of this plantation was slightly less

Courtesy of State Conservation Department

A Tiny Tree Immediately after Planting in the Clara Barton Memorial Forest

than 12 acres. It was cut in 1921–22 and yielded 589 cords of box lumber, which was sold in the neighboring city of Brockton for $10 a cord on the stump, the total return being $5890, or a trifle less than $500 an acre. The plantation was 48 years old when the cutting began, so that the average return an acre a year was $10.20 or twice the average net return shown by European municipal forests.

Because there are no planted forests in New York State old enough to be cut, it is not possible to supply definite figures as to profits, but the figures from European forests and the East Bridgewater plantation furnish what appears to be a fair range of the returns that may be expected. In view of the large amount of idle nonagricultural land in the rural portions of the State, it is reasonable to assume that such land planted to forests would yield a fair return. Counties, cities, towns and villages as well as school districts are proceeding on this assumption and starting forest projects. The total number of such forests in New York State today is 316 and their aggregate acreage is about 20,000 acres, counting 1000 trees to the acre.

If the average return to be expected from planted forests in New York State equals the average return from municipal forests in Europe — $5 an acre a year — a school district forest of 500 acres would yield an annual increment of $2500 a year, and if these forests are kept fully stocked and under proper forestry management, they could be cut on a 50-year rotation, cutting and planting ten acres a year, and yield a perpetual annual income of $2500 from land that prior to reforesting yielded nothing. Estimates of the yield of fully stocked plantations of white pine at the age of 50 years have run considerably higher than the above figures, which are based upon actual returns from European forests.

Ten school forests in the State already contain 10,000 or more trees each, the largest being the Watson school forest in Lewis county, which now contains 69,000 trees and in which the school children are planting 10,000 trees each year on Arbor Day. Sandy Creek has the second largest school forest with 42,000 trees.

To encourage the reforestation of idle nonagricultural lands, the State supplies planting stock free at its nurseries if the planting is to be done on public land.

The conservation law authorizes a county, city, town, village, school district or any other political subdivision of the State to acquire by purchase or gift or to take over lands in its possession within the boundaries of the State for forestry purposes and to use the income from such land upon the order of the governing board. As trees will grow on land too poor to be used for agricultural purposes, only the cheapest kind of land would have to be acquired.

The trees are supplied free by the Conservation Department except for a trifling charge for transportation. The cost of planting in most of the school forests thus far established is nothing, the planting being done by the pupils

(*Continued on page 201*)

The University of the State of New York

Bulletin to the Schools

Issued semimonthly during the school year by the State Education Department

CHARLES F. PROBES, *Editor*

This bulletin is sent without charge to all schools and educational institutions of the State. To others it will be mailed postpaid for 50 cents a year, 5 cents for single copies.

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APRIL 15, 1929

Arbor Day Dates

The dates of April 19th, April 26th and May 3d have been designated by Commissioner of Education Frank P. Graves for the observance of Arbor Day in this State. In his Arbor Day proclamation, printed in the March 15th issue of the Bulletin, Commissioner Graves recommended that local authorities be governed by conditions of weather and climate in their communities in determining which of these dates shall be used. He suggested, however, that in general Arbor Day be observed on April 19th in the southeastern part of the State, on May 3d in the northern part of the State and the Catskill region, and on April 26th in the rest of the State.

Assistance in the preparation of this issue of the Bulletin was given by the New York State Museum, of which Dr Charles C. Adams is Director. The appreciation of the Editor is expressed to him and to the contributors.

—o—

Gladness of Nature

Is this a time to be gloomy or sad,
When our mother Nature laughs around;
When even the deep blue heavens look glad,
And gladness breathes from the blossoming ground?

— WILLIAM CULLEN BRYANT

Be Kind to Nature

Public authority would do well to proclaim a Be-Kind-to-Nature Week. The season suggests the thought. The free roads call. The sun is giving to earth its annual baptism of golden wine. Nature, the enchanter, is touching to life and beauty, forest, fell and field; her wand is on the mountains and the hills; it rests upon the lakes and rivers. But nowhere is its magic more apparent and potent than in the leaping, laughing loveliness of the flowers — the wild flowers of the wood, of the pasture lands, of the roadsides, of the margins of the singing brooks and slow-sweeping rivers.

Autoist and pedestrian irresistibly are lured abroad by the seductive calling of May. All her skies are articulate with blue necromancy; all her winds are musical with a haunting melody; her swaying robes are starred with jewels such as Solomon or Sheba never wore; her boots are the green sod, her crown the whispering foliage of spreading arboreal reaches.

Childhood and Age know the May — they go gladly to company with her on the hills, along the silver roads; they go laughing and singing; they feel her joyous step responsive to their own. Music wells for them from feathered throats, shrills from grassy nook, murmurs where happy waters flow.

But tragedy is abroad in the May — the tragedy of the flowers. There are many who are indifferent to the glories of the budding Spirit of the Year. Plants and flowers have being — who shall truly say that they have not also souls, or some spark of the Divine Soul?

And yet people go along the roads, through the fields, through the woods, by the streams, pulling, tearing, bearing away to swift decay the buds and blooms that Nature gives so lavishly for the pleasure of men!

This vandalism — a crime — should be stopped. Let the gentian wave. Do not go a-reaving among the floral treasures — the trillium, the wake-robin, the violets, the pink dogwood, the redbud, the daisies. Look upon and drink in the beauty of the out of doors, but spare the helpless creatures of the wild. Be kind to Nature and Nature's children. The winds and the sun are their friends, the night stars and the rains love them — why should human beings destroy that which is irreplaceable? *Editorial, Cincinnati Enquirer*

Courtesy of State Conservation Department

Interior of Ten-Year-Old Scotch Pine Plantation in Oneonta's Watershed Forest

(*Continued from page 199*)

under proper direction; 75 pupils, planting with the rope and whistle method, can plant 75 trees a minute or 10,000 trees in about two hours and a quarter. This method has proved successful in many school and Boy Scout plantations where plenty of planters are available. Full information as to planting under this method may be obtained from the Conservation Department at Albany, or from Professor Joshua A. Cope at Cornell University.

In addition to providing revenue, school forests serve to educate the coming generation in the possibilities of planted forests that will enable them to make profitable use of land too poor to raise agricultural crops. Already several thousand children of school age are participating in the making of forest plantations from which they reasonably may expect to harvest the mature timber. In the past two years 1700 members of 4-H clubs, a junior branch of the Farm Bureau, have planted 1,700,000 trees on their home farms under an agreement that these plantations shall be properly made and protected, and the resulting forests kept under proper forest management. In the making and care of these plantations, an interest in forestry and a knowledge of its benefits is spread among the coming landowners in the rural sections of the State.

Three years ago I ventured a prediction in the Arbor Day Bulletin that within the next ten years the basis of reforestation would center in the community unit. At that time there were 186 municipal or community forests of all kinds in the State which had been started between 1909 and 1925, inclusive. This was an average of a trifle less than 11 such forests a year. In the three years commencing with 1926 there have been started 130 such forests, or an average

of 43 a year. During the past year 47 new community forest projects were started, several of them county forests with plantations of half a million or more trees. The remarkable increase in community forest projects during the past three years tends to bear out the prediction made in 1926.

The photographs which accompany this article show plantations varying from a few months to 24 years of age, with trees ranging in height from a few inches to 30 and 35 feet. For the first few years the growth is slow, but after ten years it is rapid. This is shown very clearly in two pictures of a plantation of red pine in

Courtesy of State Conservation Department

Two Views of a Red Pine Plantation in the Gloversville City Forest

The upper picture shows the trees four years after planting and the lower picture taken from practically the same place 11 years later shows how a few years' growth on a plantation will change the landscape.

Courtesy of State Conservation Department

Twenty-four-Year-Old Scotch Pine Plantation after Thinning at Cross Clearing

the Gloversville city forest, one taken when the plantation was four years old and the second taken 11 years later.

The picture taken in the interior of the state plantation at Cross Clearing shows a 24-year-old Scotch pine plantation that has been thinned and pruned as a fire protective measure. At the age of about 25 years, plantations should be thinned to improve the stand. The trees removed are large enough to be used for poles or posts and constitute the first return from the forest. If Norway spruce or balsam are included in a plantation, they can be cut for Christmas trees at from seven to ten years.

With the assistance that the State is now giving to communities wishing to reforest lands that are now idle and nonproductive, the starting of school district forests is easy and not expensive. The Watson school forest, the largest and one of the first established, furnishes an excellent illustration of just how to do it. The town board purchased 98 acres of land for $300 and turned it over to the pupils of the nine schools in the town to reforest. The trees cost nothing, being supplied free from the state nurseries. The planting was done by the school children as part of their Arbor Day exercises under the supervision of a forest ranger, 4000 the first year and 10,000 each year thereafter. There was no cost of labor for planting and no interference with the school work of the pupils. The pupils take a lively interest in the work and before the planting of the tract is completed, ten classes will have received practical lessons in tree planting that will prove of value to them on their home farms.

G. A. Sealey, district superintendent of schools of Lewis county, who with G. H. Gould, then supervisor of the town, was mainly responsible for starting the forest, speaks highly of the possibilities of school forests. He says:

In reforesting, as in so many other enterprises today, the labor is the big factor. I think that this can be readily solved by making a practical application of Arbor Day and enlisting the aid of the school children. Snow barriers in the rural districts might be erected at a profit by reforesting the roadsides near the drifting areas with white pines that would act as a windbreak as they grew. With the hearty cooperation of the people of the districts denuded hills may be crowned again with verdant green, shrunken streams may attain their former size and beauty, and the wealth of forests may be greatly restored by reforesting the waste lands in the rural districts with the aid of the school children.

The Buffalo Museum of Science

The Buffalo Museum of Science and the School Child

Education in natural history for the better understanding of the meaning of life is the primary purpose of the new Buffalo Museum of Science, as it is administered by the Buffalo Society of Natural Sciences. Efforts in this direction extend from tiny tots to adults and from the simplest problems to research in scientific fields. Particular emphasis is placed upon the instruction of school children.

The educational department of the new museum was dedicated and opened to the public on September 22, 1928, this marking the fiftieth season of service to the schools, formerly conducted on a restricted scale because of inadequate facilities. In cooperation with the board of education of Buffalo, arrangements were made for bringing to the museum during the school year every public school pupil in the fifth, sixth, seventh and eighth grades. Through the courtesy of the department of public safety, these children, accompanied by their teachers, are brought to the museum by classes every week day at 9.30 o'clock in motor buses. The daily average is about 200 pupils. They assemble in the auditorium, where they listen to a graded and illustrated lecture on some branch of natural history, the general topic this year being birds. Following this, they are divided into small groups and escorted by the teacher and a science guide to the particular exhibit hall of the museum which contains what they have just heard described. Brief visits are paid to other parts of the building in order to give the child a glimpse of the museum's facilities that are available to them. Then they are returned to their schools, each teacher being given printed material designed to aid her in following up in her classroom the instruction received at the museum.

Beginning in February a similar service was made available to children of the fifth and sixth grades of the parochial schools. A bus schedule was arranged to bring 100 pupils to the museum every school day afternoon at 1 o'clock. In addition to these parochial schools, pupils of five Catholic and a number of other private schools also avail themselves of such instruction.

A series of science lectures for high school pupils is given every Thursday afternoon. Planned by a committee of science teachers in the public, parochial and private high schools, the series offers outstanding lecturers in the biological and physical sciences.

Another service furnished by the visual education division involves the lending of electric stereopticon lanterns and sets of slides, many of them colored and many of them with manuscript lectures accompanying them. Many

One of the Groups of Birds in the Bird Alcove of the Hall of the Niagara Frontier, Buffalo Museum of Science

school teachers make use of this service to bring topics such as art, travel, science, natural history, geology, geography etc. to the pupils of their classes. More than 300 sets of slides, correlated with the city's syllabuses of study, have been especially assembled for the use of teachers in the first through the eighth grades. Many of these sets have been selected and arranged by the visual instruction division of the Buffalo department of education, this division making its headquarters in the visual education division of the Buffalo Museum of Science. This entire collection includes more than 60,000 slides, and in 1928, 32,526 were lent.

Supplementing this, there is a large collection of standard-sized reproductions of famous

paintings — old masters and modern. These are lent without charge for a period of two weeks. Accompanying each picture, in an envelop pasted on the back of the mount, is a brief sketch of the artist and an appreciation of the picture.

A popular service, given by the society for several years, is the children's story hour, held in the auditorium of the museum at 10.30 o'clock Saturday mornings. This is for children between six and ten years old. With the convenience afforded by the new museum, the enrolment in this series has reached the thousand mark.

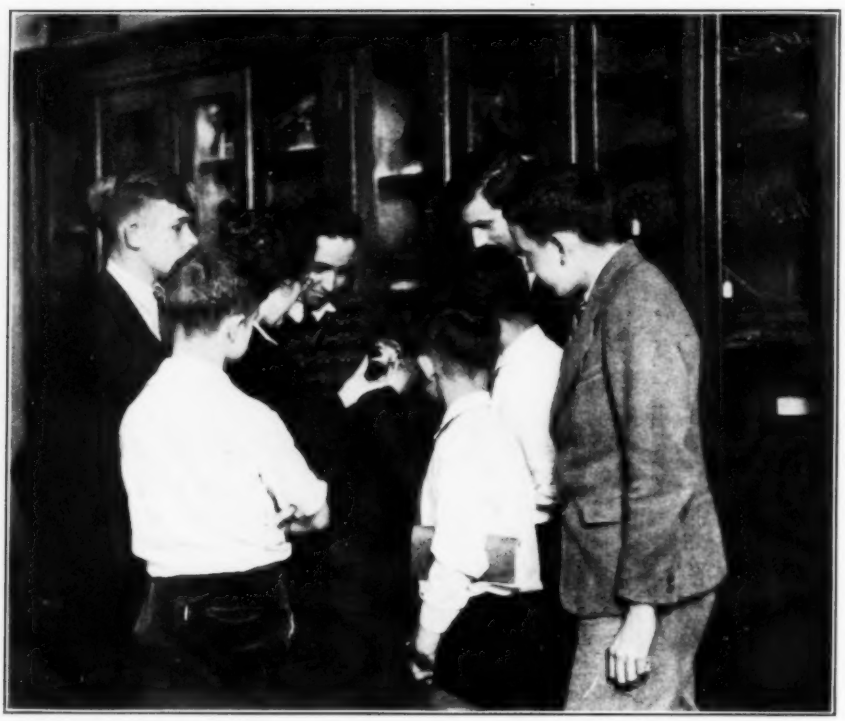
A story teller also goes monthly to the Buffalo Association for the Blind and each Saturday afternoon to the Children's Hospital, where some of the joys of natural history are given to these handicapped children.

On Saturday afternoons motion pictures are shown. The series this year is from the "Chronicles of America," which depict the history of our country. The demand is so great that two showings are necessary.

One end of the library and reading room is set aside for a children's library, which includes a large number of books adapted to their use and covers subjects in which they are otherwise instructed.

The Roosevelt Field Club and the Roosevelt Hobby Club are organizations designed to meet the needs of the older boys and girls. The programs of the Field Club include field work in the spring and fall and lectures in the winter, while the Roosevelt Hobby Club is an outgrowth of the Roosevelt Field Club and is an advanced group.

A splendid room lined with cases has been assigned to the members of the Roosevelt Field Club as a means of displaying their personal collections. A club committee arranges and labels the material brought in by the members.



Members of the Class in Shells, One of 14 Groups at the Buffalo Museum of Science

The opportunity to exhibit is a much coveted honor and implies work and merit in connection with the material displayed.

On Saturdays and week days after school there are natural science classes for boys and girls between 11 and 16 years. Such subjects are taught as birds, shells, aquatic biology, gardening, Indians, astronomy, wild flowers and minerals. These classes meet once a week.

Museum games are a delight to the boys and girls, and make them more observant and fix facts more securely in their minds. They consist of a series of questions, 40 to a set, based upon the museum exhibits. Each child takes a question from a tray, finds and learns the answer, recites it to an instructor, who gives credit for a satisfactory answer.

On a definite schedule covering all day Saturday, instruction is given to Boy Scouts, Girl Scouts and Camp Fire Girls in such subjects as conservation, bird study, stars, reptiles, insect life, botany and forestry. Special tours through the museum are also arranged for these groups and for junior Woodcrafters.

Altogether the Buffalo Museum of Science presents a rather complete program for youth — for the school child. It is designed to furnish a foundation upon which can be built wholesome leisure-time pursuits, avocations and even vocations.

Will Americans Gather Faggots?

BY J. R. SIMMONS, FORESTER, THE NEW YORK STATE FORESTRY ASSOCIATION

The general trend of events in any land blessed with great forests as an original heritage seems to be first, an "inexhaustible" supply of timber; second, great forest wealth ample to supply the needs of all, but confined to certain localities so that a portion of the people are obliged to pay high prices for transportation; third, reasonably good supplies of timber and wood but managed under conditions which some of the more thoughtful citizens "view with alarm"; fourth, rapidly diminishing supplies of timber and wood, high prices, long hauls, fire, waste and confusion; fifth, the taking over of the situation by the government, the adoption of strict methods of forestry and the dealing out to private citizens of their proportionate share of what is available at a price determined by yield and not any longer by competition. In the fifth stage we become faggot gatherers.

By faggots we mean fuel wood of a sort unknown to Americans. Faggots, so much prized by European families, consist of small branches, willow and poplar hedge cuttings, and even grapevine trimmings, in fact any wood gleanings that may be useful in producing warmth. The burning of faggots represents utilization to the *n*th degree of materials generally considered by us to be waste products.

I wonder whether America will come eventually to the faggot gathering stage? We are cutting about five times as much timber annually as is being grown in this country, and the center of lumber production has shifted from New York State to the Pacific coast within the memory of persons now living. We have reduced our forest wealth by two-thirds within a century, while our population has increased twelve-fold. Our eastern states import 9 per cent of their lumber, at a staggering cost in freight. About one-quarter of the land in these states is idle, produces nothing of value but continues to pay taxes. I can not help believing that we are living in a period somewhat like the fourth stage of depletion mentioned above, and that the march of events foreshadows a time when our people will have to gather faggots if they want a fire in the hearth.

The Intermediate Period

Most students of conservation problems are agreed, however, that we can forestall a severe timber shortage if we will act intelligently, promptly and bravely. Suppose, for example, that the price for ordinary lumber should be suddenly advanced to $500 a thousand feet. The owners of woodland would recognize a profit in tree growing and would immediately enter into the business on a large scale. But this sudden advance in cost will not take place. Instead, the rise in price will creep up on us like a habit.

Our objective, therefore, is to shorten the period of severe need, since we have already gone too far with the system of timber mining to hope that a shortage can be prevented. We have been using virgin timber recklessly for 300 years.

Hopeful Signs and Constructive Enterprises

One of the most helpful contributions toward an adequate timber supply is the community forest. This statement can be made confidently, for we know that when the European countries passed through that period of shortage that followed upon exhaustion of the virgin forests and preceded the period of forest stabilization, many of the communities resorted to growing local timber — and won. There are communities in Europe that impose no local taxes because the public institutions are run on the profits of the town forest. Of present European forests, 20 per cent are town-owned in Germany, 22 per cent in France, 50 per cent in Bulgaria and nearly 70 per cent in Switzerland.

Fortunately the people of New York State a few years ago recognized this possibility of solving their local forest problem and have made very hopeful progress. It is a humble beginning and does not mean much when we consider that there are four million acres of idle land in our State, but undoubtedly the municipal forestry movement influenced the creation of the present State Reforestation Commission which will devote itself to finding ways and means of setting to work this whole idle area. We can say with truth that the people of New York do not want their grandchildren to be compelled to gather faggots.

A survey made by the New York State Forestry Association and published in the September issue of American City shows that in 1922 when the association offered to plant the first 5000 trees for any city in the State that would set aside the land for a municipal forest, there were 26 cities owning a little under 200,000 acres of watershed land and with only 8000 acres reforested. In 1928 there were found to be more than 270 municipal forests in the State and a total planted area of 20,000 acres of municipal land.

A survey made by the New York State Bureau of Municipal Information about the same time shows the following most encouraging results of this movement:

Cortland had reforested 85 of its 120 acres in 1921. Its entire watershed is now planted. Elmira had not started the work but now has 60 per cent of its watershed reforested. Little Falls had reforested 130 acres in 1921 and now has 955 acres planted. Ithaca had not started this municipal activity in 1921. It now has 100 acres planted. Mechanicville has practically reforested all of its watershed during the past seven years. Middletown has reforested 150 acres and New York City has planted 1,272,000 trees, making a total of 7,000,000 since the metropolis started the work. Newburgh has increased its reforested acreage from 5 to 25 per cent of its total watershed area, and Salamanca has planted 100 acres. Saratoga Springs, which had not started the work in 1921, now has 60,000 trees growing. Rochester has increased its reforested area from 730 to 1000 acres. Newburgh is planting at the rate of 5000 trees a year, Elmira, 12,000, Ithaca, 20,000 and Oneonta from 25,000 to 50,000. Little Falls is the first city in the State to begin cutting. It is now receiving an annual revenue of $12,000.

What Can the Average Citizen Do to Help?

In many minds the question arises, "What can I do as an individual citizen to aid the effort toward adequate and perpetual timber supply?" The answer, it seems to me, is supplied by those organizations, state and national, that represent the forestry minded element of the population. Join one of those organizations. They are educators of public opinion, they establish forests on idle land in the home area, they sponsor and support constructive legislation, they encourage private enterprise in forest building and in application of the best methods of harvesting timber crops, and they serve as a meeting ground where Americans may exchange ideas, discuss methods and find solutions for forest problems. It is better to be a member of a forestry association now in 1929 and pay the small annual fee required for promotion of the organization's work than to hand on to posterity the impending necessity of becoming a member of a faggot gathering army a few decades hence.

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